

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M123869B Large Tank	Client:	Alaskan Copper Works
Date Received:	11/05/09	Project:	% of Acid, PO M123869
Date Extracted:	11/09/09	Lab ID:	911045-02 x1000
Date Analyzed:	11/09/09	Data File:	911045-02 x1000.023
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	bth

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	85	60	125
Indium	72	60	125
Holmium	81	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	13,200,000 ca
Nickel	10,100,000
Copper	1,570,000
Zinc	55,200
Arsenic	10,700
Silver	<1000
Cadmium	5,090
Lead	13,000
Iron (screen)	26,700,000

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M123869A Small Tank	Client:	Alaskan Copper Works
Date Received:	11/05/09	Project:	% of Acid, PO M123869
Date Extracted:	11/09/09	Lab ID:	911045-01 x1000
Date Analyzed:	11/09/09	Data File:	911045-01 x1000.022
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	bth

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	81	60	125
Indium	75	60	125
Holmium	83	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	5,150,000 ca
Nickel	6,540,000
Copper	6,220,000
Zinc	31,500
Arsenic	3,910
Silver	<1000
Cadmium	4,940
Lead	5,120
Iron (screen)	21,700,000

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID: Method Blank
Date Received: Not Applicable
Date Extracted: 11/09/09
Date Analyzed: 11/09/09
Matrix: Water
Units: ug/L (ppb)

Client: Alaskan Copper Works
Project: % of Acid, PO M123869
Lab ID: I9-477 mb
Data File: I9-477 mb.008
Instrument: ICPMS1
Operator: btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	90	60	125
Indium	88	60	125
Holmium	91	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1 ca
Nickel	<1
Copper	<1
Zinc	<1
Arsenic	<1
Silver	<1
Cadmium	<1
Lead	<1
Iron (screen)	<250

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/09

Date Received: 11/05/09

Project: % of Acid, PO M123869, F&BI 911045

Date Analyzed: 11/06/09

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR SPECIFIC GRAVITY
@ 15.56 °C**

Sample ID
Laboratory ID

Specific Gravity

M123869A Small Tank
911045-01

1.18

M123869B Large Tank
911045-02

1.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/09

Date Received: 11/05/09

Project: % of Acid, PO M123869, F&BI 911045

Date Analyzed: 11/06/09

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR PERCENT ACID**

Sample ID
Laboratory ID

Percent Acid

M123869A Small Tank
911045-01

7.49

M123869B Large Tank
911045-02

10.03

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/09

Date Received: 11/05/09

Project: % of Acid, PO M123869, F&BI 911045

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 911058-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Chromium	ug/L (ppb)	1.72	1.91	10	0-20
Nickel	ug/L (ppb)	<1	<1	nm	0-20
Copper	ug/L (ppb)	23.0	22.7	1	0-20
Zinc	ug/L (ppb)	1,050	1,070	0	0-20
Arsenic	ug/L (ppb)	<1	<1	nm	0-20
Silver	ug/L (ppb)	<1	<1	nm	0-20
Cadmium	ug/L (ppb)	<1	<1	nm	0-20
Lead	ug/L (ppb)	5.87	6.09	4	0-20

Laboratory Code: 911058-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chromium	ug/L (ppb)	20	1.72	102	50-150
Nickel	ug/L (ppb)	20	<1	82	50-150
Copper	ug/L (ppb)	20	23.0	75 b	50-150
Zinc	ug/L (ppb)	50	1,050	40 b	50-150
Arsenic	ug/L (ppb)	10	<1	89	50-150
Silver	ug/L (ppb)	5	<1	101	50-150
Cadmium	ug/L (ppb)	5	<1	101	50-150
Lead	ug/L (ppb)	10	5.87	105 b	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	106	70-130
Nickel	ug/L (ppb)	20	109	70-130
Copper	ug/L (ppb)	20	111	70-130
Zinc	ug/L (ppb)	50	105	70-130
Arsenic	ug/L (ppb)	10	93	70-130
Silver	ug/L (ppb)	5	108	70-130
Cadmium	ug/L (ppb)	5	107	70-130
Lead	ug/L (ppb)	10	106	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/09

Date Received: 11/05/09

Project: % of Acid, PO M123869, F&BI 911045

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR SPECIFIC GRAVITY
@ 15.56 °C**

Laboratory Code: 911045-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Specific Gravity	1.18	1.18	0	0-2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/12/09

Date Received: 11/05/09

Project: % of Acid, PO M123869, F&BI 911045

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF WATER SAMPLES
FOR PERCENT ACID**

Laboratory Code: 911045-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Percent Acid	7.49	7.62	2	0-20

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Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 - More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

November 12, 2009

 DUPLICATE

INVOICE #09ACU1112-1

Accounts Payable
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

RE: Project % of Acid, PO M123869, F&BI 911045 - Results of testing requested by
Gerry Thompson for material submitted on November 5, 2009.

2 samples analyzed for Specific Gravity @ \$30 per sample	\$ 60.00
2 samples analyzed for Percent Acid Content @ \$75 per sample	150.00
Rush Charges (24 hr) 100% of \$210.00	210.00
2 samples screened for Total Fe, As, Cd, Cr, Cu, Pb Ni, Ag, Zn by Method 200.8 @ \$150 per sample	300.00
Rush Charges (48 hr) 80% of \$300.00	<u>240.00</u>
Amount Due	\$ 960.00

FEDERAL TAX ID

(b) (6)

Send Report To:

Company

Address (

City, State, ZIP

Phone #2

1-1-1
Port To General Thayer
Alaskan Copper Works
628 S. Hancock St
Seattle WA 98134
ZIP 206-574-6087 Fax # 206-582-8779

SAMPLERS (signature)

PROJECT ADDRESS

% of Seiz

JOB #

M 123865

REMARKS

Fax Result Asap (24 hr)

Page # _____ of _____

TURNAROUND TIME

☐ **Standard**

RUSH 24 hr

Rush charges authorized by:

SOLVENT

☐ Methanol☐ DI Water☐ Other _____[illegible]

Friedman & Bruya, Inc.
3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Fax (206) 283-5044

FORMS\COC\METH2.DOC

SIGNATURE

Relinquished by

Received by


Relinquished by:

Received by:

PRINT NAME _____

General Thayer
Nhan Phan

COMPANY



FeBI

DATE _____

11/5/09

11/5/0	
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TIME

2.79 p

2:39

Samples received at 20°C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
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3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

November 12, 2009

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on November 5, 2009 from the % of Acid, PO M123869, F&BI 911045 project. There are 9 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
ACU1112R.DOC